

SENSORY ATTRIBUTES OF THE SQUASH MADE FROM PUMPKIN AND RED BELL PEPPER (ORANGIE VEGGIES)

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ABSTRACT

Sensory attributes of the squash prepared from pumpkin (*Cucurbita Maxima*) and Red bell pepper (*Capsicum annum*), Lemon (*Citrus Limonum*), Ginger (*Zingiber Officinale*) juice was evaluated. Fruit juices of pumpkin, red bell pepper, lemon and ginger were incorporated for the preparation of the squash at different levels, where T_0 (60% Pumpkin juice, 28% Red bell pepper juice, 12% Ginger juice), T_1 (60% Pumpkin juice, 28% Red bell pepper juice, 8% Ginger juice, 4% Lemon juice), T_2 (60% Pumpkin juice, 24% Red bell pepper juice, 8% ginger juice, 8% lemon juice), T_3 (60% Pumpkin juice, 32% Red bell pepper juice, 4% lemon juice, 4% ginger juice). Good quality of squash can be prepared by blending 60% pumpkin juice, 24% Red bell pepper juice, 8% Ginger juice, 8% lemon juice (T_2). Pumpkin, Red bell pepper, Ginger, Lemon have good medicinal and nutritional properties like antidiabetic, antioxidant, anticarcinogenic, anti-inflammatory, antimicrobial, laxative and improve the digestive system. It is seen that the organoleptic score of squash prepared, by blending 60% Pumpkin juice, 24% Red bell pepper, 8% Ginger juice, 8% lemon juice was highest i.e. 7.8 followed by treatment T_1 , T_3 and T_0 .

KEYWORDS: Pumpkin, Red Bell Pepper, Ginger, Lemon, Squash & Sensory

Received: Aug 16, 2017; **Accepted:** Sep 08, 2017; **Published:** Oct 03, 2017; **Paper Id.:** IJASROCT201748

INTRODUCTION

Squash is easily digestible thirst quenching appetizing and nutritionally far superior to mainly synthetic and aerated drinks. (Sidappa 1986) Processing of fruit and vegetable to the juice and other valuable product are ways, abundant fruit and vegetable can be utilized to reduce the wastage and bring economical returns to the farmer. (Palve et.al. 2015) Many of the tropical fruits and the vegetable have not been utilized in area of juice like pumpkin (*Cucurbita maxima*) in Marathi called kashiphal. Pumpkin belongs to the genus *Cucurbita* L. Like most other member of Cucurbitaceae. *Cucurbita* are herbaceous frost sensitive trailing tendril bearing large palmate leaves and prominent fruits. (Khamida. A 2013) *Cucurbita* is one of the most economically important genera of vegetable crops with three of its species being widely distributed in cultivation. Pumpkin often is featured at harvest festivals and holiday and is an integral part of many stories for children. Pumpkin as well as cucurbits in general because of their fast growth rate, large size, polymorphism, decorative value and role as a common table vegetables have a fostered at ones wonder and myth that have left a trail of metaphors in many languages. (Norman and Harborg 1980) Pumpkin is used as a term of endearment, but also has been variously used metaphorically for sensuality, fertility abundance obesity and sterility. Pumpkin was native to North America, are widely grown for commercial use and used both in food and recreation. In New Zealand and Australian languages (English) the term pumpkin each generally refer to the broad category called winter squash (Ravani. A. 2014)

Pumpkin is an annual vine or trailing plant and can be cultivated from sea level to high altitude. It is famous for its edible seed, fruit and greens (Yadav M.et. al.2010). Pumpkin fruit vary in size, colour, shape and weight. They have moderately hard rind with a thick, edible flesh below a centre seed cavity. Pumpkin is a seasonal crop and since fresh pumpkin is very sensitive to microbial spoilage, even at refrigerates condition. They must be frozen or dried. (Joseph et.al. 2016)Pumpkin and winter squash are among the most resistant to the cucurbits, to insects and disease. (Janat B. Et. al. 2010) India is the world second largest producer of food, next to china and has the potential of being the biggest with the food and agriculture sector. (Manuja. K et.al.2014)

Systematic Classification

Table 1: Systematic Classification of Pumpkin

Kingdom	Plantae
Clade	Angiosperms
Clade	Eudicots
Clade	Rosids
Order	Cucurbitales
Family	Cucurbitaceae
Genus	Cucurbita
Species	Maxima

Source: USDA

Pumpkin, due to its larger size (Approx 2 to 8 kg/ fruit) has less consumer acceptances as a fresh vegetable. Due to surplus production and less consumer demand there is crash in price during the season, causing the loss of growers on the other hand, its scarcity during off seasons result in higher market price causing loss of consumer (Ravani. A.2014). The ultimate solution to the above said problem is the dehydration of pumpkin and its utilization in various products. Fruits are undoubtedly very important for nutrition security, with high potential of value addition and foreign exchange earnings. Fruits and vegetable are now considered as an important item of commerce, as they have enormous market potential. Tropical fruits, which are presently underutilized, have an important role to play in satisfying the demand for nutritious, delicately flavored and attractive natural food of high therapeutic value. (Ame Ravani 2014)Pumpkin fruits are nutritious and act as a laxative and diuretic along with other ingredients. It is administered for cough, asthma, ulceration of the lungs. (Usha Ravi 2010). Pumpkin is rich in beta – carotenes, minerals, vitamins, pectin and dietary fiber. The yellow, orange characteristic colour of pumpkin is the presence of carotenoid. Besides being nutritionally rich, the fruit also possess many medicinal properties. Pumpkin contains lots of antioxidant like Vit. A and C, as well as zinc and alpha hydroxyl acid, which help to reduce the sign of aging. Pumpkin is a valuable source of functional components, mainly carotenoid, lutein, location, xanthine, ascorbic acid, phytosterol, selenium and linoleic acid, which acts as an antioxidant, which are reported to prevent skin diseases, eye disorder and cancer (Kiruthig.V2015)?

Table 2: Proximate Composition of Fresh Pumpkin

Composition %	Fresh Pumpkin
Moisture	92.24
Fat	0.15
Protein	0.98
Ash	0.76
Crude fiber	0.56
Carbohydrate	5.31



Figure 1: Pumpkin

(Source: Mayyawadee Saeleaw)

Pumpkin increase the level of serum insulin reduces blood glucose level and improvement of glucose. Tolerance in mice by pumpkin polysaccharide also hypochlolesteromic, antibacterial, anti-inflammatory and antitumor activity reported Shelf life of the pumpkin is very short, and it tends to deteriorate during storage, so different ways of conserving and processing into various products. (Gordana M. Zdunic et. al. 2016)

Health Benefits of Pumpkin

Pumpkin Polysaccharide: The main nutritional characteristic of *C. moschata* pulp is that, it's dry material is abundant in polysaccharide, which includes soluble polysaccharide and insoluble dietary fibre. Many studies prove that, *C. Moschata* polysaccharides (pp) have an obvious effect on reduction of serum glucose. Hypoglycemic activity of water extracted pp (6.88 gm/kg body wt. twice daily for 3 weeks) were demonstrated and superior to glibenclamide in alloxan-induced diabetic rate ($p < 0.01$). Oral administration of the extract (300 and 600 mg/kg body wt. per day) for 30 days, resulted in significant reduction in blood glucose glycosylated hemoglobin and increase in plasma insulin and total hemoglobin. In clinical trial pumpkin polysaccharide granules and pumpkin polysaccharide liquid administered orally all cause a significant reduction of postprandial serum, glucose and fasting glucose in (NIDDM) non-insulin dependent diabetes mellitus. The protein bounded polysaccharide from pumpkin fruit (PBPP) which contain 41.2% polysaccharide and approximately 10.13% protein can also distinctly increase the level of serum insulin reduce blood glucose level and improve tolerance to glucose. Eighteen amino acid were identified to be components of polymer. Alanine was main amino acid (0.13%), followed by glutamic acid (0.113%) and serine (0.088%) pentose, play an important role in the hypoglycemic effect of pumpkin polysaccharide. The process of fiber retrieval from *C.moschata* rendered in first step for each 100 gm of pumpkin, approximately 38.0 gm juice, 38.2 gm of press pulp.

Carotenoid: Carotenoid is a major source of Vit A (V_A), which is necessary for normal eyesight growth and embryonic development. V_A deficiency is a common cause of blindness and infant mortality. Pumpkin is an excellent source of pro V_A carotenoid. The yellow, orange colour of the pumpkin flesh arise from carotenoid. The visual characterization of colour correlates well with the carotenoid content. Varieties with a high content of carotene have an orange appearance and varieties with high lutein content and low carotene content show bright yellow colour. The major carotenoid pumpkin is β - carotene, with small amount of α - carotene lutein lycopene and trace amount of cryptoxanthin and cis β -carotene. The content carotene from 0.06-7.5 mg 100gm for β - carotene and from 0-7.5 mg, 1100gm for α -carotene and from 0-17 mg /100gm for lutein. Research on the nutritional component in pumpkin indicated that, pumpkin can be a primary vegetable to satisfy children's needs for the carotenoid.

Minerals: Pumpkin is an eminent source of mineral important for human health. *C. moschata* pulp contain high calcium (Ca) 205.44mg/ gm and potassium (K) 1840.3µg/gm, as well low sodium (Na) 28.70µg/gm, which make a pumpkin a suitable food for middle aged and aged people is it also good for preventing osteoporosis and hypertension pumpkin is superior to any other vegetable in chrome (Cr) content. Cr is a component of glucose tolerance factor which is essential to advance the activity of insulin and accelerates the oxidation of blood glucose and thus improves blood glucose tolerance. Hypertensive diabetics are commonly deficient in or which decrease insulin and lead to a high level of blood glucose. Cobalt is an also essential mineral in pumpkin which can improve the body metabolic capacity, promote haematopoiesis and participate in the synthetic action of the V12. Ca is a necessary micro element for islet cells a lack of which can induce diabetic. Elemental composition, generally increase with age and antinutrient also increases with age in the stem root and seeds. Young leaves, which are often preferred for human consumption, where higher in cyanide (60.1mg /100gm dm) and tannin content (40.6mg/100gm dm) than older ones. Hence, young leaves should be properly cook, in order to remove antinutrient effect, before consumption at the same time oxalate (10.0mg/100gm dm) content were higher in the older ones, they may be nutritionally preferred for consumption, but due to high potassium (632mg/100gm dm) iron (9.12gm/100gm dm) and crude fat 56.24% content, mature pumpkin seed may be more appropriate to develop vegetable oil.

Amino Acid and Active Protein: Although the protein content of a pumpkin is less than 2.0% of dry weight. There are various essential amino acid in pumpkin pulp e.g. The percentage of lysine (0.508%), valine (0.609%), leucine (0.700%), isoleucine (0.493%), phenyl Alanine (0.483%) and threonine (0.38%) are high in *C. moschata*. Many immune component proteins have also been found in pumpkin, and more attention has been paid to antifungal protein for pumpkin, for developing safe and innoxious nature preservative. Crude pumpkin extract and various purify fraction including protein and polysaccharide have shown anticancer activity, against melanoma enrich ascites and leukaemia. Interestingly, enzyme preparation of pumpkin has been found to possess antitumor potential.

Pigments and Others: Xanthophylls' are apparently the predominant pigment present in pumpkin as shown by absorption around 415 nm. Pigment from pumpkin pulp is widely used as additives in fruit, Medicine and cosmetics for their stable coloration extensive available source simple extraction technology. There is special subject called gamma aminobutyric acid (GABA) in pumpkin. It is ubiquitous non protein amino acid, which produce primarily by the α -decarboxylation of Glucose, catalyzed by the enzyme glutamate be carboxylate (GAD). The well- known GABA functions animals, as a major inhibitory neurotransmitters. GABA is involved in the regulation of cardiovascular function, such as blood pressure, heart rate and plays a role in sensation of pain and anxiety. The consumption of GABA foods, such as a pumpkin could depress the elevation of systolic blood pressure in spontaneously hypertensive rate (Thing Zhou *et.al.*2007)

Red bell pepper: The interest in the consumption of pepper (*capsicum annum*) is to a large extent due to its content of bioactive compound and they're important as dietary antioxidant. Pepper is used as a colorant, flavourant and / or as a source of pungency. It has both nutritional and nutraceutical importance. It contains an anticoagulant, that helps to prevent blood clots, that can cause heart attack bell pepper is a good source of vitamin C. The benefit resulting from the use of natural product, rich in bioactive substance has promoted the growing interest in food industries. Natural antioxidants are preferred, because synthetic antioxidant is considered carcinogenic. Antioxidant present in the (*capsicum annum*), protects the food or the body from proactive damage, induced by free radical oxygen. (Mohammad N. *et.al.*2011)

Systematic Classification

Table 3: Systematic Classification of Red Bell pepper

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyte
Division	Magnoliopsida
Class	Magnoliopsida
Subclass	Asteridae
Order	Solanales
Family	Solanaceae
Genus	Capsicum L.

Source: USDA

Native of America, sweet bell pepper is solanaceous fruit, belong to the *Cap. Annum* L. species, whose consumption is growing in popularity mainly due to its occurrence in a wide variety of colours, ranging from yellow, green, and orange, red, purple shape, sizes, and its characteristic flavor (*Sonia M Castro et.al.2008*) Sweet pepper *Capcium annum* are excellent source of Vit C, as well as phenolic compound, which are important antioxidant component that may reduce the risk of disease (*Narmin Yazdizadash et.al.2012*)

Pepper is gaining popularity because, they are cholesterol free low in sodium and calories, and a good source of vitamin A and Vit C. They are known to possess antimicrobial activity, to reduce the risk of lifestyle related disease such as arthritis, cancer and cardiovascular disease in India bell pepper has become one of the major commercial cash crops in the mid hills region of the county specially Himachal Pradesh, U.P, parts of Utrakhand and J& K (*Rakesh Sharma and V.K Joshi 2014*)

Table 4: Physico-Chemical Parameters of Red Bell Pepper

Parameter	Percentage
Moisture	92.8±0.2%
Ash	1.33±0.02%
p ^H	4.81±0.01%
Titrate acidity	26.1±0.9%
Soluble solids	6.01±.02 (20°brix)



Figure 2: Red Bell Pepper

Source: - (*S.M Castro et.al.2007*)

Like other vegetable bell pepper is perishable in nature and derivatives within few days after harvest is especially in the rainy season and these losses are further enhanced when there is a glut in the market due to storage problem

marketing and lack of appropriate processing technology, thus to minimize the losses and to provide remunerative returns to growers processing and preservation of bell pepper is the only alternative. The major phyto-chemical in hot pepper are capsaicinoids more than 20 capsaicinoids, belong to 2 group capsaicin and dihydrocapsaicin have been identifying pepper capsaicin constituent, about 705 of pungent flavor is not pepper, while its analogue dihydrocapsaicin represent 30%. Bell pepper offers a number of nutritional values. They are an excellent source of Vit A & C and also they are source of Vit B₆, folic acid, β -carotene and fiber red pepper also contain lycopene believe important for reducing risk of certain cancer (GMF2008). The proximate chemical compound of red bell pepper include dry matter (9.92%), total fat (0.33gm), protein (0.99 gm), carbohydrate (10.63 gm) and dietary fiber (2.3gm), Vit C (133.00 mg) calories (46.79 kcal), energy (195.58kg) (Joao Silva Dias). Red bell pepper can be used in other fresh food and cooked foods. Capsanthin is the main carotenoid present in paprika, followed by capsorubin and provitamin. The pungency of capsicum sp. depend on concentration of capsaicinoids particularly capsaicin in the pepper fruit. The major component are capsaicin dihydrocapsaicin and non dihydrocapsaicin, accompanied by several major capsaicinoids, which are present at very low level, which are not through to contribute greatly to overall pungency. (Sulaiman O. Aljaloud et.al. 2012)

Ginger: Ginger (*Zingiber officinale*), belongs to zingiberaceae family the part of plant used is rhizome the plant produce and orchid like flower, with petal that are greenish yellow streaked with purple colour. Ginger is cultivated in area of abundant rainfall. Eventhough, it is native to Southern Asia. Ginger is cultivated in tropical area also, such as Jamaica, China, Nigeria, and Haiti. It is mainly cultivated in Kerala, Karnataka, Tamilnadu, and north eastern state. In Sanskrit ginger is known as Sringavera, which has given by way to it zingeberi in Greek and to the Latin Zingiber. Ginger has been used as medicine from Vedic period and is called Mahausadhi means great medicine. It was used as carminative and antiflatulent. The Greek physician Galen used ginger as a purificant of body he caused by imbalance in body (ICMR bulletin). Ginger has been identified as an herbal medicinal product with pharmacological effect (Shirin Adel P.R, Jamuna Prakash 2010)

Table 5: Chemical Composition of Ginger

Component	Composition
Moisture	80.9%
Protein	2.3%
Fat	0.9%
Mineral	1.2%
Fiber	2.4%
Vit c	9.33 \pm 0.08%
Carbohydrate	12.35%



Figure 3: Ginger

Source: - (Dr. Mr. Anita Singh 2015)

Ginger proves to have a higher microbial power than convectional antibiotic against two strains of staph infection. Ginger is through to have anti-inflammatory properties sometimes used to treat arthritis. Ginger has been used for its herbal properties which are specially helping in easing stomach and motion sickness. This herb has been effective in controlling nausea and vomiting. It is hypothesized to work by changing serotonin receptors in the digestive tract (*Dr. Mr Anita Singh*). In the fresh ginger rhizome the Gingerol were identified as the major active component and Gingerol (s-hydroxy-1 (4-hydroxy -3-methoxy phenyl) decan-3one is most abundant constituent in the Gingerol series. In Ayurveda ginger has been recommended for use as carminative diaphoretic, antispasmodic, expectorant, peripheral circulatory stimulant, anti-inflammatory agent, diuretic and digestive aid (ICMR). Spices and condiments are an integral part of human diet particularly in the orient. Beside their used to impart flavor, colour, and food preservation and enhance palatability they have been extensively beneficial affected. Fortunately, even long term consumption of this subject known to produce a side effect (ICMR). Apart from the medicinal properties ginger can also be used as an antioxidant supplement (*Shirin Adel P.R. 2010*)

Lemon: Lemon is an important medicinal plant of the family Rutaceae. It is cultivated mainly for its alkaloids, which are having anticancer activities and antibacterial potential, in crude extracts of different parts (leaves, stem, root and flower) of lemon against clinically significant bacterial strain has reported (*M. Mohanpriya et.al.*). Citrus fruits have long been valued as part of a nutritious and tasty diet. The flavors provide by citrus are among the most preferred in the world and it is increasingly evident, that citrus not only taste good but is also good for people. It is well established that citrus and citrus fruit is a rich source of Vit, minerals and dietary fiber (non starch polysaccharide), that are essential for normal growth and development and overall nutrition well-being (*C. Economos*)

Scientific Classification

Table 6: Systematic Classification of Lemon

Kingdom	Plantae, Angiosperms, Eudicots, Rosids
Order	Sapindates
Family	Rutaceae
Genus	Citrus
Species	C. Limon
B. name	Citrus Limon



Figure 4: Lemon

Source: USDA

Nutritional Facts

Carbohydrate: The main energy yielding nutrient in citrus in citrus is carbohydrate; citrus contain the simple carbohydrate (sucrose) fructose as well as citric acid provides the small amount of energy. Citrus fruit also contains non-starch polysaccharide, commonly known as dietary fibre, which is a complex carbohydrate with important health benefit.

Vit C: Vit C (ascorbic acid) on essential water soluble vitamin plays a key role in the formation of collagen, a primary component of much of the connective tissue in the body. Adequate collagen synthesis is essential for strong ligaments, tendons, dent in skin, blood vessel and bones and for wound healing and tissue repairing contemporary interest in Vit c centers on its ability to perform antioxidant function.

Folate: Folate is a water soluble vitamin essential for new cell production and growth. It helps in the production of DNA and ribonucleic acid (RNA) and mature red blood cells, which prevent the anemia.

Potassium: Potassium is an essential mineral that works to maintain the body's water and acid balance. As an imported electrolyte it plays a role in transmitting nerve impulse muscle, during muscle contraction and in the maintenance of normal blood pressure.

Phytochemical: Several classes of phytochemicals continue to grow as does an understanding of include monoterpenes, limonoids, flavonoid, carotenoids and hydroxyl cinnamic acid has been isolated from citrus. (*C. Economos*)

EXPERIMENTAL METHODS

The pumpkin, Red bell pepper, Ginger and Lemon fruits required for study obtained from the local market of Nashik, Maharashtra. Firm matures Pumpkin, Red bell pepper, Ginger and lemon are used for the preparation of the squash in different level viz.

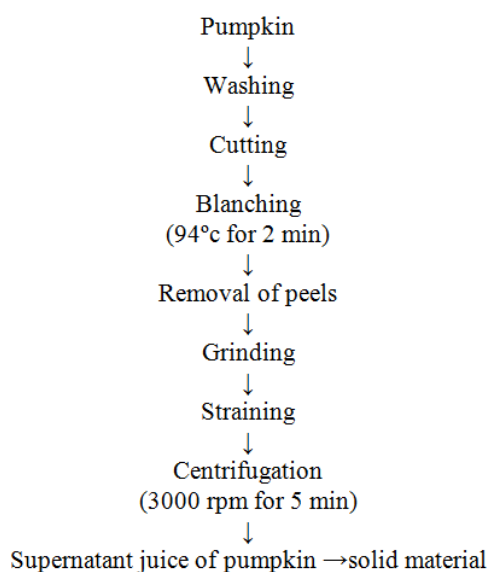
T₀ (60% pumpkin juice, 28% red bell pepper juice, & 12% ginger juice)

T₁ (60% pumpkin juice, 28% red bell pepper juice, 8% ginger juice & 4% lemon juice)

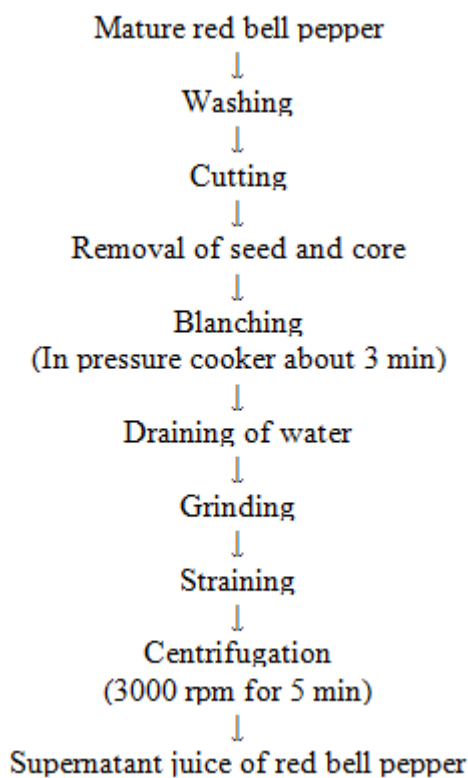
T₂ (60% pumpkin juice, 24% red bell pepper juice, 8% lemon and 8% ginger juice)

T₃ (60% pumpkin juice, 32% red bell pepper juice, 4% lemon & 4% ginger juice)

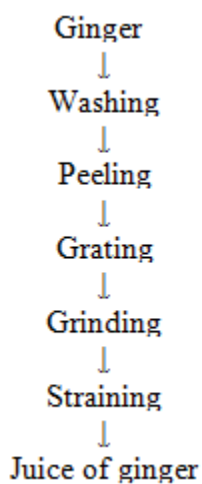
Flow Sheet



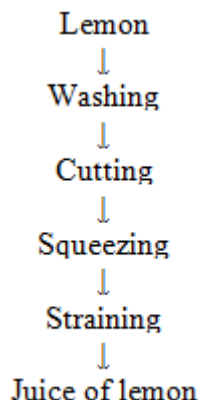
Flow Sheet No: 1 Process Technology of Pumpkin Juice



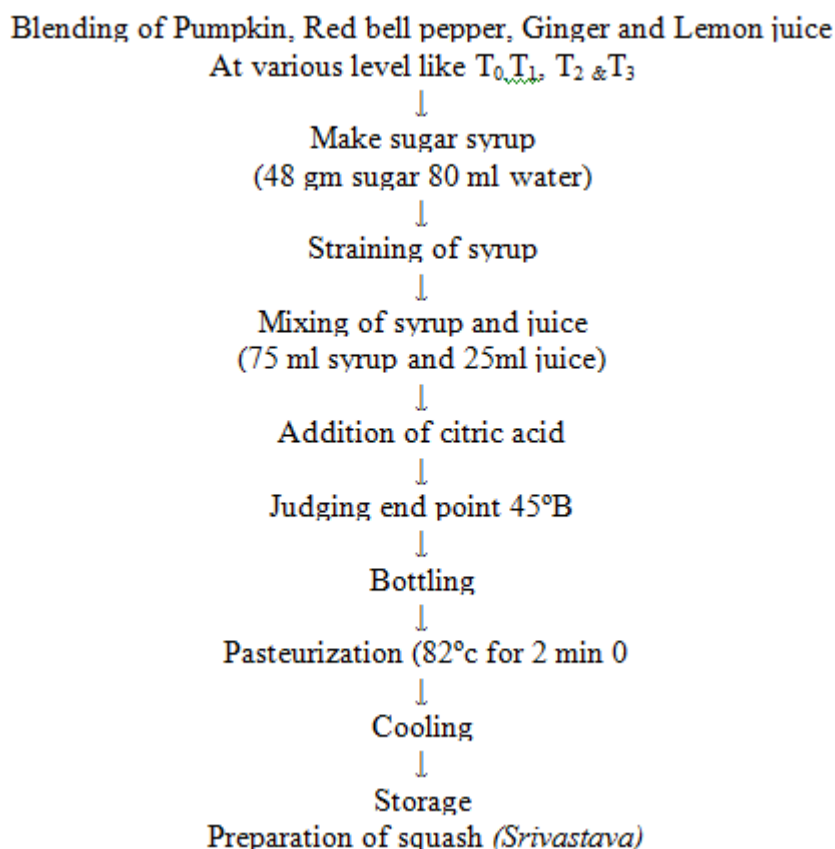
Flow Sheet No: 2 Process technology of Red Bell Pepper Juice



Flow Sheet No: 3 Process Technology of Ginger Juice



Flow Sheet No: 4 Process Technology of Lemon Juice



Flow Sheet No: 5

Experimental Finding and Analysis

The experimental was replicated 3 times and total 12 samples of squash were prepared and served to a panel of expert to judge the product sensory evaluation of the squashes of the were judged for colour, taste, clarity, consistency, aroma and overall acceptability on a nine point hedonic scale. Varying from dislike extremely (score1) to like extremes (score 9) (Palve *et.al.* 2015)

Table 7: Replication 1

Sample	Colour	Clarity	Aroma	Consistency	Taste	Acceptability
T ₀	6	5.1	5.8	6.5	5	6
T ₁	5.9	6	7.9	6.8	6	6.2
T ₂	7.1	7.0	7.5	7.5	7.5	7.5
T ₃	6	6	6.5	6.5	6.5	6.5

Table 8: Replication 2

Sample	Colour	Clarity	Aroma	Consistency	Taste	Acceptability
T ₀	6.2	5.5	5.5	6.0	5.5	6.2
T ₁	6	6	6	7	6	6.5
T ₂	7.5	7.5	7.5	7.5	8	7.5
T ₃	6.5	6.0	6.5	6.5	7	7

Table 9: Replication 3

Sample	Colour	Clarity	Aroma	Consistency	Taste	Acceptability
T ₀	6.2	5.5	6.5	6.5	6.5	6.5
T ₁	6	6.5	6	6.5	7	6.58
T ₂	7.7	7.3	7.5	7.0	8	7.8
T ₃	6	5.8	6.5	5.5	6	6

Table 10: Mean Table

Sample	Colour	Clarity	Aroma	Consistency	Taste	Acceptability
T ₀	6.2	5.3	5.9	6.3	5.7	6.2
T ₁	5.9	6.1	6	6.7	7.6	6.3
T ₂	7.4	7.2	7.3	7.3	7.5	7.6
T ₃	6.7	5.9	6.5	6.1	6.5	6.5

The organoleptic score for colour ranged from 5.9 to 7.7 highest scores for T₂ was found 7.7, which was superior overall remaining treatment T₀, T₁ & T₃. The organoleptic score for clarity ranged from 5.1 to 7.5 and highest score for T₂ was found 7.5, which were superior over all remaining treatment i.e. T₀, T₁ & T₃. The organoleptic score for aroma ranged from 5.5 to 7.8 highest scores for T₁ sample was found to be 7.9, which was superior over all remaining treatment. i.e. T₀, T₂ & T₃.

The organoleptic score for consistency ranged from 6.0 to 7.5 & highest score was found 7.5, which were superior over all remaining treatment. i.e. T₀, T₁ & T₃. The organoleptic score for taste ranged from 5 to 8 and highest score for T₂ was found 8, which were superior over all remaining treatment i.e. T₀, T₁ & T₃. The organoleptic score for overall ranged from 7.8 highest scores for T₂ was found 7.8, which were superior over all remaining treatment i.e. T₀, T₁ & T₃. *Palve et al (2015)* recorded sensory attribute for development of squash from Beal and Pineapple.

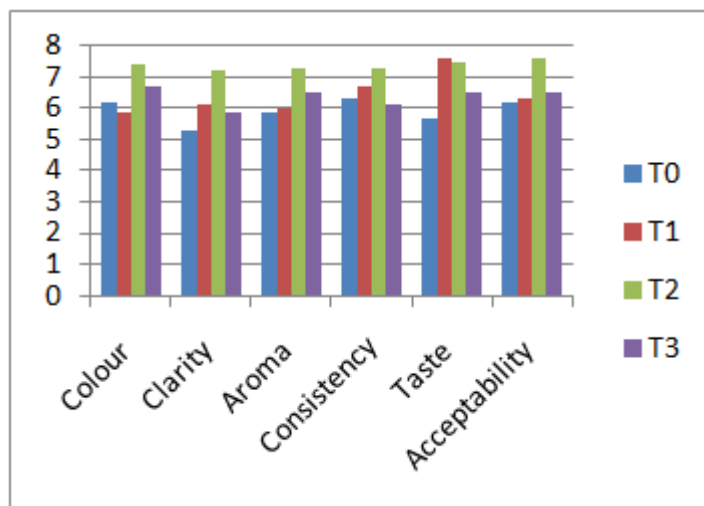


Figure 5: Organoleptic Score

CONCLUSIONS

From the result of present investigation squash developed from a blend of Pumpkin, Red bell pepper, lemon, and ginger fruits was having appealing colour and pleasing flavor. It may conclude that, good quality squash can be prepared by blending 60% pumpkin juice, 24% Red bell pepper juice, 8% Ginger and 8% Lemon juice. Treatment T₂ scored highest, followed by T₃, T₁, & T₀. All other proportion did not show good results in term of sensory attributes. The good quality of squash is acceptable and thus, it helps in utilizing of pumpkin and red bell pepper. Indian food tech should consider the scope for export pumpkin, red bell pepper, processing as highly promoting. These drinks are consumed less as food of refreshment than for their medicinal effect.

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